

# CUBIT Capability Proposal

## Technical Area

Geometry, Meshing, Infrastructure, GUI, Graphics, etc..

## Technical Lead

Cubit Developer in charge of technical area

Infrastructure-Graphics	Clinton
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## MRD Description

Describe the capability in terms of how a user would see it.

Improve drawing and interaction of blocks and boundary conditions. Better drawing of blocks to support a larger number of elements and interaction with the block to visualize quality, and use clipping planes to view the insides of blocks. Support selection and highlighting of boundary conditions. Support representing analysis specific information about the boundary conditions (force, temperature, etc...).
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## SRS Description

What needs to be done by Cubit developers to implement this capability? Break the tasks into steps if applicable. (Steps should be on the order of 2 man-weeks or more)

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| <ol style="list-style-type: none"><li>1. Add support for putting block elements in a vtkUnstructuredGrid (which can be skinned to draw the skin of a large number of elements). Add support to select elements in a vtkUnstructuredGrid.</li><li>2. Change draw commands to draw skins of elements.</li><li>3. Add clipping plane to allow clipping of elements by a plane which can be swept through a group of elements.</li><li>4. Change the "quality draw" command provide the graphics with quality metrics instead of drawing each element with a color. The graphics can then color based on the quality metric. This would allow seeing the quality of elements while clipping.</li><li>5. Provide a "BC visibility" on/off mode. When on, all boundary conditions will be shown on the model at all times.</li><li>6. Change sideset/nodeset drawing code to use CAT's BC graphics code, with their glyphs for representing pressures, temperatures, etc... Support for selection and highlighting of these boundary conditions is already implemented.</li></ol> |
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## Justification

Describe why this is important and what impact it will have if it is implemented. (or not implemented).

There has been a continual request for improvements in this area. To do it right, a lot of work needs to be done to get the whole thing right, instead of incrementally adding bits and pieces, which may not all come together in the end. In bugzilla, there are currently 6 items that this would address.
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## Resources

Who will work on this

## Time estimate

How much time will it take in man-weeks

## Targeted Release

10.2 (August 06), 10.3 (March 2007), 10.4 (August 2007), Future (beyond FY07)

Clinton	8 weeks	10.2
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## Submitted By:

Clinton	3/29/06
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## Date:

